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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/587,275

07/25/2006

Kazuo Minemura

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EXAMINER

ROE, JESSEE RANDALL

ART UNIT

PAPER NUMBER

1793

NOTIFICATION DATE

DELIVERY MODE

04/12/2010

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

IPGENERALTYC@SSD.COM  
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<b>Office Action Summary</b>	<b>Application No.</b> 10/587,275	<b>Applicant(s)</b> MINEMURA ET AL.	
	<b>Examiner</b> Jessee Roe	<b>Art Unit</b> 1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 22 February 2010.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-6 and 8 is/are pending in the application.  
4a) Of the above claim(s) 4 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5-6 and 8 is/are rejected.
- 7) ☒ Claim(s) 1 and 8 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)                        | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Status of the Claims***

Claims 1-6 and 8 are pending wherein claims 1 and 6 are amended, claim 4 is withdrawn from consideration and claims 7 and 9 are canceled.

### ***Claim Objections***

Claim 1 is objected to because of the following informalities: "raising temperature" in line 5 of claim 1 should be changed to "raising the temperature". Appropriate correction is required.

Claim 8 is objected to because of the following informalities: Claim 8 has the status identifier (Currently Amended), but should have the status identifier (Previously Presented). Language has not been added to or omitted from claim 8.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-3, 5-6 and 8 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably

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convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

In regards to claim 1, the specification does not provide support for the recitation “raising temperature of said metal material, which has not been subjected to a passive film removing treatment, to a temperature at which the surface treatment is performed in a place in which amino resin is present, and during the raising of the temperature, removing the passive film by C, N and H which are liberated from the amino resin”.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-3, 5-6 and 8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With respect to the recitations “removing a passive film on a surface of a metal material prior to heating with a temperature-maintaining process” in lines 2-3 of claim 1 and “raising temperature of said metal material, which has not been subjected to a passive film removing treatment, to a temperature at which the surface treatment is performed in a place in which amino resin is present, and during raising of the temperature, removing the passive film by C, N and H which are liberated from the amino resin” in lines 5-9 of claim 1, it is unclear if the passive film is removed before heating or the passive film is removed or after the metal material has been heated.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3 and 5 are rejected under 35 U.S.C. 102(b) as being anticipated by Trigg et al. (US 2,904,875).

In regards to claims 1-2 and 5, Trigg et al. ('875) discloses passing strips of magnetic material such as silicon-iron alloys, nickel-iron alloys, cobalt-iron alloys and the like through an aqueous coating composition comprising melamine-formaldehyde resin wherein after passing the magnetic material through the coating composition, the strips are wound and then placed in an annealing furnace (Example III and col. 5, lines 3-13). In the annealing furnace, all traces of alcohol, water and melamine-formaldehyde resin and decomposition products are removed (Example III).

The Examiner notes that because Trigg et al. ('875) discloses heating together the magnetic (metallic) material and the resin, removal of a passive film would be expected. MPEP 2112.01 I.

In regards to claim 3, Trigg et al. ('875) discloses that the application of the melamine-formaldehyde resin would occur by a composition having 470 parts of melamine-formaldehyde resin, 210 parts of magnesium hydroxide, 4 parts bentonite, 1500 parts isopropyl alcohol, and 1500 parts water (solvent) (Example III).

Claims 1, 5-6 and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by Lerche et al. (DD 296 967).

In regards to claims 1, 5 and 8, Lerche et al. (DD '967) discloses coating a steel X 45 CrNiW 18.9 testpiece with an aqueous solution comprising 0.03 weight percent melamine (resin) at a temperature of 95°C and then gas-oxynitriding the testpiece for 18 hours at 570°C (Example 1).

The Examiner notes that because Lerche et al. (DD '967) discloses heating the steel and the amino resin together and the instant specification states that when a heat treatment is performed in the presence of the amino resin, the amino resin decomposes (page 4, lines 17-20), removal of the passive film and decomposition of the amino resin would be expected. MPEP 2112.01 I.

In regards to claim 6, Lerche et al. (DD '967) discloses that the nitride layer having increased hardness would be 0.1 mm in depth (hardened layer) (Example 1).

### ***Claim Rejections - 35 USC § 102/103***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3 and 5-6 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Furono (US 4,504,324).

In regards to claims 1 and 5, Furono ('324) discloses a method of removing a spontaneously formed oxide film (passive film) on the surface of an aluminum alloy plate by heating in a 7% aqueous sodium hydroxide solution at 55°C for 3 minutes; dipping the aluminum alloy into commercial reagent grade nitric acid; electrodepositing by using an electrodeposition bath of water soluble acryl melamine resin, which would read on the melamine resin as recited in claim 5, and passing a direct current to the bath at 30°C for 2.5 minutes; and then baking for 30 minutes at 190°C (Comparative Example 1). Alternatively, in Comparative Example 1, Furono ('324) does not specify that the nitric acid concentration would be high enough to bring the aluminum alloy plate to a passive state (col. 6, lines 39-55). However, it would have been obvious to one of ordinary skill in the art to modify the nitric acid concentration in order to achieve the desired aluminum surface passivity. MPEP 2144.05 II.

With respect to the recitation "wherein the removing comprises heating together said metal material and an amino resin.", the Examiner notes that the plate would be in the resin when the current is applied to the bath (thus heating the plate) and then baked at 190°C (where the resin has been deposited on the plate).

With respect to the amended recitation "wherein the heating decomposes the amino resin" in line 5 of claim 1, the Examiner notes that the instant specification states

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that when a heat treatment is performed in the presence of the amino resin, the amino resin decomposes (page 4, lines 17-20). Therefore, any elevation in temperature would result in the decomposition of the amino resin, which would include baking for 30 minutes at 190°C, as disclosed by Furono ('324) (Comparative Example 1).

In regards to claims 2, Furono ('324) discloses baking at 190°C (which would occur in a furnace or oven) after electrodeposition (Comparative Example 1).

In regards to claim 3, Furono ('324) discloses an electrodeposition bath of water soluble acryl melamine resin (solvent) (Comparative Example 1).

In regards to claim 6, Furono ('324) discloses a coated aluminum plate (compound layer) after baking at 190°C (Comparative Example 1).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Furono (US 4,504,324) as applied to claim 6 above, and further in view of Gredelj et al. (Characterization of aluminum surfaces with and without plasma nitriding by X-ray photoelectron spectroscopy).

In regards to claim 8, Furono ('324) discloses a method of removing a spontaneously formed oxide film (passive film) on the surface of an aluminum (abstract)

or aluminum alloy plate as shown above, but Furono ('324) does not specify nitriding or carburizing.

Gredelj et al. discloses that plasma nitriding can be used for surface hardening aluminum if the native aluminum oxide layer is removed (pg. 240, col. 2).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply plasma nitriding, as disclosed by Gredelj et al., to the aluminum having a removed oxide film, as disclosed by Furono ('324), in order to successfully harden the surface of the aluminum, as disclosed by Gredelj et al. (pg. 240, col. 2).

### ***Response to Arguments***

Applicant's arguments filed 22 February 2010 have been fully considered but they are not persuasive.

First, the Applicant primarily argues that Trigg et al. ('875) does not teach or suggest "raising temperature of said metal material, which has not been subjected to a passive film removing treatment, to a temperature at which the surface treatment is performed in a place in which amino resin is present, and during the raising of the temperature, removing the passive film by C, N and H which are liberated from the amino resin" and Example III of Trigg et al. ('875) describes metal strips having liquid coatings applied and passed through a furnace provided with heating elements to effect vaporization of the water and alcohol and to complete the curing of the resin to a thermoset material.

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In response, with respect to the recitations “removing a passive film on a surface of a metal material prior to heating with a temperature-maintaining process” in lines 2-3 of claim 1 and “raising temperature of said metal material, which has not been subjected to a passive film removing treatment, to a temperature at which the surface treatment is performed in a place in which amino resin is present, and during raising of the temperature, removing the passive film by C, N and H which are liberated from the amino resin” in lines 5-9 of claim 1, it is unclear if the passive film is removed before heating or the passive film is removed after the metal material has been heated.

Therefore, Trigg et al. ('875) would meet the claims since either interpretation of claim 1 would be valid and Trigg et al. ('875) teaches passing strips of magnetic material such as silicon-iron alloys, nickel-iron alloys, cobalt-iron alloys and the like through an aqueous coating composition comprising melamine-formaldehyde resin wherein after passing the magnetic material through the coating composition, the strips are wound and then placed in an annealing furnace (Example III and col. 5, lines 3-13) and all traces of alcohol, water and melamine-formaldehyde resin and decomposition products are removed (Example III).

Second, the Applicant primarily argues that Lerche (DD '967) does not teach or suggest that a metal material and the amino resin are heated together so that the amino resin is decomposed. The Applicant additionally argues that Lerche (DD '967) does not clearly teach or suggest that a nitriding treatment or a carburizing treatment is performed after removing the passive film and Lerche (DD '967) is silent as to teaching or

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suggesting "raising temperature of said metal material, which has not been subjected to a passive film removing treatment, to a temperature at which the surface treatment is performed in a place in which amino resin is present, and during raising of the temperature, removing the passive film by C, N and H which are liberated from the amino resin".

In response, Lerche (DD '967) teaches coating a steel X 45 CrNiW 18.9 testpiece with an aqueous solution comprising 0.03 weight percent melamine (resin) at a temperature of 95°C and then gas-oxynitriding the testpiece for 18 hours at 570°C (Example 1). With respect to the recitations "removing a passive film on a surface of a metal material prior to heating with a temperature-maintaining process" in lines 2-3 of claim 1 and "raising temperature of said metal material, which has not been subjected to a passive film removing treatment, to a temperature at which the surface treatment is performed in a place in which amino resin is present, and during raising of the temperature, removing the passive film by C, N and H which are liberated from the amino resin" in lines 5-9 of claim 1, it is unclear if the passive film is removed before heating or the passive film is removed after the metal material has been heated. Therefore, Lerche (DD '967) meets the claims since Lerche (DD '967) teaches coating a steel X 45 CrNiW 18.9 testpiece with an aqueous solution comprising 0.03 weight percent melamine (resin) at a temperature of 95°C and then gas-oxynitriding the testpiece for 18 hours at 570°C (Example 1).

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Third, the Applicant primarily argues that Furono ('324) fails to teach or suggest "raising temperature of said metal material, which has not been subjected to a passive film removing treatment, to a temperature at which the surface treatment is performed in a place in which amino resin is present, and during the raising of the temperature, removing the passive film by C, N and H which are liberated from the amino resin". The Applicant further argues that there is no teaching of a nitriding treatment in Furono ('324).

In response, with respect to the recitations "removing a passive film on a surface of a metal material prior to heating with a temperature-maintaining process" in lines 2-3 of claim 1 and "raising temperature of said metal material, which has not been subjected to a passive film removing treatment, to a temperature at which the surface treatment is performed in a place in which amino resin is present, and during raising of the temperature, removing the passive film by C, N and H which are liberated from the amino resin" in lines 5-9 of claim 1, it is unclear if the passive film is removed before heating or the passive film is removed after the metal material has been heated. Furthermore, Furono ('324) discloses a method of removing a spontaneously formed oxide film (passive film) on the surface of an aluminum alloy plate by heating in a 7% aqueous sodium hydroxide solution at 55°C for 3 minutes; dipping the aluminum alloy into commercial reagent grade nitric acid; electrodepositing by using an electrodeposition bath of water soluble acryl melamine resin and passing a direct current to the bath at 30°C for 2.5 minutes; and then baking for 30 minutes at 190°C (Comparative Example 1). Although Furono ('324) is silent with regard to a nitriding

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treatment, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references (claim 8). See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Gredelj et al. discloses that plasma nitriding can be used for surface hardening aluminum if the native aluminum oxide layer is removed (pg. 240, col. 2).

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jessee Roe whose telephone number is (571)272-5938.

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The examiner can normally be reached on Monday-Thursday and alternate Fridays 7:00 AM - 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy V. King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/ Roy King/  
Supervisory Patent Examiner, Art  
Unit 1793

/JR/